DECODED:

Alterations to Fire Door Assemblies

From the well-known blog **idighardware.com**, Lori Greene brings some much-needed clarity to codes.

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I FREQUENTLY RECEIVE QUESTIONS ABOUT alterations of existing fire door assemblies, including preparation for new hardware and addressing holes left by hardware that has been removed. NFPA 80, *Standard for Fire Doors and Other Opening Protectives* (2013), addresses two types of alterations made in the field: job site preparations and field modifications.

Job Site Preparations

Hardware preparations made on the job site are covered under Section 4.1.3, Appurtenances. The term *appurtenance* is not defined in NFPA 80, but it is generally used to describe subcomponents of an assembly. In the case of a fire door assembly, appurtenances include locks, hinges, closers, astragals and other hardware, as well as glass lites, louvers and plant-ons.

Preparations for appurtenances must be performed in accordance with the manufacturer's inspection procedure and under label service—typically at the manufacturer's facility or an authorized shop where labels may be applied. In addition, limited preparations may be made on the job site. This section of NFPA 80 limits job site preparations to the following:

- Holes for surface-applied hardware—applied to the door or frame without removing material other than drilling round holes to accommodate cylinders, spindles, and similar operational elements, as well as through-bolts. The maximum diameter for these holes drilled in the field is 1 inch, except cylinder holes that may be drilled in the size necessary to accommodate the cylinder.
- Function holes for mortise locks
- Holes for labeled viewers
- Maximum ¾-inch wood and composite door undercutting
- Protection plates

Protection plates are generally metal or plastic plates used to protect the door from wear or impact and are covered in Annex E of NFPA 80. They may be applied to one or both faces of the door; attached by adhesive, screws or other mechanical means; and typically mounted within the bottom 16 inches of the door to avoid affecting the performance of the door during a fire.

Plates above the 16-inch location may be used if allowed by the door manufacturer's listings, but plates mounted above this area are required to be labeled if they are installed in the field. Protection plates installed within the bottom 16 inches of the door may be field-installed without needing to be labeled.

Plant-ons are usually decorative trim, either flat or contoured, and may be made of various materials. They are also addressed in Annex E, but the standard is not

specific about what types of plantons are acceptable, where they can be installed, and how they must be attached. These prescriptive requirements can be obtained from the door/frame manufacturer.

Field Modifications

In the 2013 edition of NFPA 80, a definition for field modifications was added: *"Changes, not otherwise permitted by this standard, made to a listed assembly or component after it has been manufactured."* This definition, along with additional information in Annex A, makes it clear that the acceptable job site preparations listed previously are not considered field modifications.

Field modifications are addressed in Section 5.1.4 of the 2013 edition of NFPA 80. For changes made in the field that are above and beyond those allowed as job site preparations, permission may be requested in advance by contacting the manufacturer of the component being modified; the manufacturer will then contact the appropriate listing laboratory with a written or graphic description of the modifications.

One example of a field modification that is frequently desired is a raceway for an electrified lockset. Permission for raceways drilled in the field may be allowed by the listing laboratory, but detailed information about how the work will be done should be provided. There is at least one tool and certification program available for drilling raceways.

If the manufacturer of the component being modified is no longer available, the lab may be contacted directly, and an engineering evaluation supporting the field modification may be provided. A field visit from the listing laboratory is not required if permission is granted by the lab. If modifications are made without prior approval, the doors and/or frames may need to be re-labeled by the listing laboratory, which will include a site visit and inspection and can be costly.

Filling Holes

Job site preparations and field modifications sometimes result in holes left in the surface of the door or frame due to the removal of existing hardware. NFPA 80 requires holes to be repaired by one of two methods: install steel fasteners that completely fill the holes, or fill the screw or bolt holes with the same material as the door or frame. The standard seems to be addressing only holes from fasteners and not larger holes—for example, a hole left after a concealed closer is removed and replaced with a surface closer.

To determine whether an existing hole may be covered by a filler plate, or whether covering existing holes with new hardware is sufficient, the door/frame manufacturer should be contacted to ensure that the proposed solution is acceptable. During an annual fire door inspection, the inspector will verify that no modifications have been made that will void the label and that there are no open holes or breaks in the door or frame. The 2013 edition of NFPA 80 also requires fire door assemblies to be inspected after installation and after maintenance work, which would include the types of alterations described in this article.

Most filler materials are not listed for use in filling holes in a fire door assembly, but there is a fire door caulk that has been successfully tested and listed for that purpose. Although this material is not currently mentioned in NFPA 80, the development of new products is not prohibited by the standard. According to Section 1.4, Equivalency, the Authority Having Jurisdiction (AHJ) shall review descriptive information from the manufacturer and testing laboratory with regard to products not described by NFPA 80. A proposed change to the next edition of NFPA 80 may help to clarify the acceptable process with regard to larger holes.

Conclusion

When preparing to perform a field modification or when questions arise, it's best to avoid problems by conducting research and planning in advance. While NFPA 80 gives some direction with regard to protocols that must be followed when making alterations in the field, to get definitive answers you may have to contact the manufacturer of the component being modified, or even the listing laboratory on the label.

The door or frame label will contain helpful information to identify the manufacturer and testing lab, along with a number that can be used to obtain more detailed specifications. The manufacturer should be the starting point for most requests, and then the listing laboratory. The AHJ may also be contacted for assistance.

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